



MESA FIXED AUTOMATIC

// MESA



PRODELIN Installer Manual

WHAT IS A MESA

The **MESA** is a three (3) axis (Azimuth, Elevation and Skew) Automatic Fixed Mounting system.

The MESA is an Automatic Fixed mount system and is designed for a variety of applications.

- It can automatically track Incline Orbital Satellites
- It is pole mounted but can be directed to other satellites at will.
- It provides flexibility to allow the end user to go from one satellite to another to take advantage of bandwidth or services using the same IP address.
- It gives you the flexibility of a Mobile system but at a fraction of the cost.
- Automatic alignment and realignment.
- Easily transportable from site to site.
- Redundant satellite service (moving to one or more other satellites) can now be achieved by the customer with out a trained certified technician on site.
- On-demand service is now available based on customer requirements.

FEATURES

- Three (3) axis automation (Azimuth, Elevation and Skew)
- Will track Incline Orbit Satellites in Azimuth and Elevation
- Available in 1.2 Meter dish (1.8 meter available mid 2010)

Prodelin

Andrews

- Motor operation directed and operated through the coax cables
- Motor power is 12 VDC and is supplied by a 2 conductor cable that is connected to the MESA Controller. An Optional 12 VDC battery may be ordered when installations do not allow a run of the 2 conductor cable. The battery is located on the mount and is recharged through the Rx coax cable. The battery is an option and is not required.

SPECIFICATIONS

Electrical Interface

F Type connector ODU PCB with 12V external power or Optional 12V Battery supply

DiSEQ Communications to IDU

Motors

Azimuth 12V 1 Amp (operational)

Elevation 12V 2.5 Amp (operational)

Polarization 12V 1 Amp (operational)

Mount Rotation

Azimuth 280 Degrees

Elevation 10 to 89 degrees

Azimuth Tracking Speed .333 degrees per second

Elevation Tracking Speed .080 degrees per second

Mechanical

Azimuth Gear reduced Worm Drive +/- degree

Peaking resolution Linear +/- .025 degree

Elevation Acme screw drive +/- .1 degree

Polarization chain reduced direct drive +/- .25 degree

Physical

Mount assembly weight without antenna 34 lbs.

Environmental

Wind Operational (see antenna specs)

Wind survival (see antenna specs)

BUC (see BUC specs)

LNB (see LNB specs)

Cable Run Limitations

RG6 – Solid Copper up to 250 ft. Longer runs will require RG11

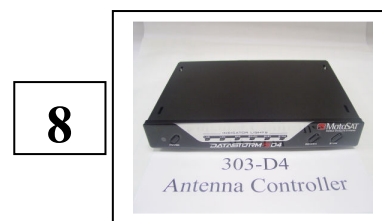
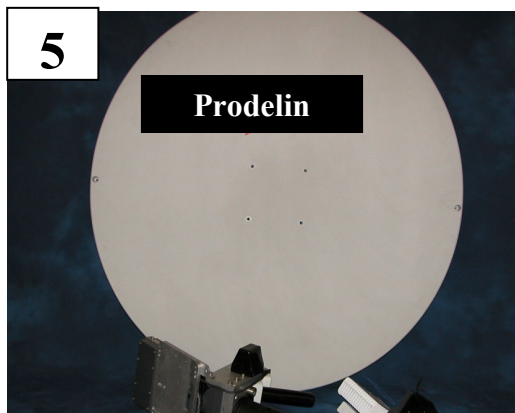
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BILL of MATERIALS

Your Complete MESA System comes complete with the following

1. Mount Pedestal
2. Skew Assembly
3. LNB (Optional)
4. BUC (Optional)
5. Antenna. 1.2 meter (**Prodelin**)
6. LNB Support Arms (3)
7. Attaching Hardware
8. Controller (your choice of a stand-a-lone chassis or a 1RU at an additional cost.)
9. Modem (Optional) not shown.



Optional 1RU



CAUTIONS:

INSTALLATION POLE HEIGHT

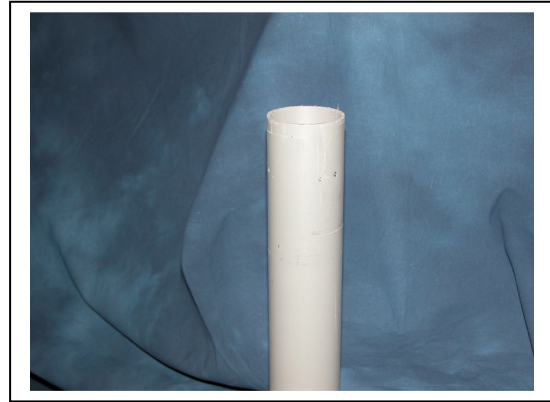
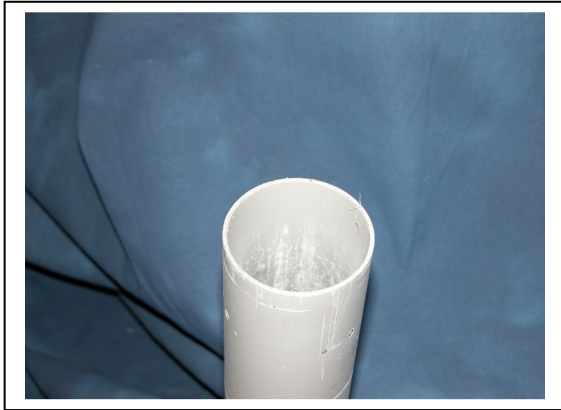
The pole must be tall enough that the dish face will clear any structure or obstacle that it may encounter. Restriction of the movement in such a manner could cause damage to the dish face, mount or both. It is up to the installing personnel to assure that proper clearances are maintained.

CONTROLLER SETTINGS

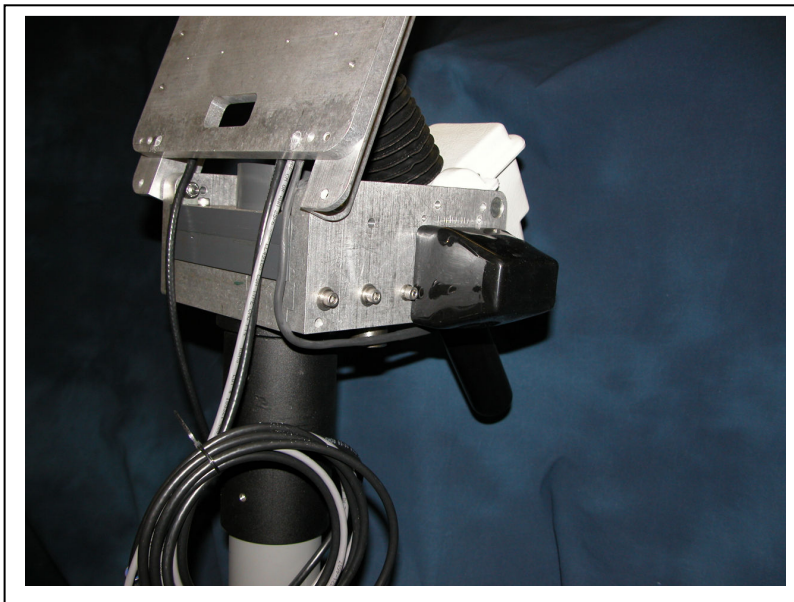
Prodelin reflectors require an 8 degree “Elevation Origin” setting in the controller. This adjustment is pre-set in the controller by MotoSAT's final inspection group when the system ships from MotoSAT. If a customer does an "NV clear" command which sets the controller back to factory settings (which it does just that), the “Elevation Origin” setting will be set back to zero. The Prodelin MESA system will not function optimally. If the “Elevation Origin” is not set to 8 degrees when using a Prodelin reflector, the customer's search times will increase significantly. Consult your controller's Operation Manual for further detail.

INSTALLATION

1. Installation begins with a Ground Pole which must be 3" OD (Out side Diameter.) Any mounting pole larger than this will not accommodate the MESA Mount Pedestal. It must be hollow at least 4 inches down from the top of the pole. Pipe thickness does not matter. We recommend that the pole be tall enough in height to keep the transmitter out of a child's reach.



2. Start by placing the MESA Mount Pedestal on the mounting pole.

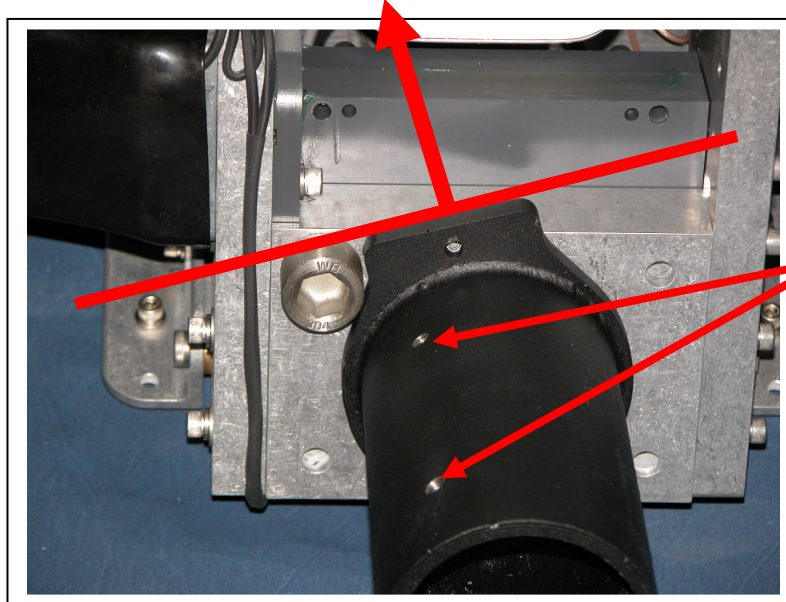


MOUNT ALIGNMENT

3. **IMPORTANT!!** Orient the flat surface of the underside of the Mount WEST. Insert the six (6) Mount Retaining Screws into the base and tighten completely. There is no more positioning of the mount that is required from this time forward.

WEST for **NORTHERN HEMISPHERE**

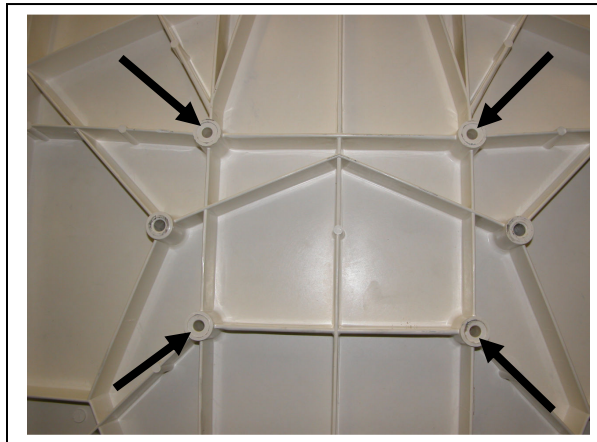
EAST for **SOUTHERN HEMISPHERE**



Mount Retaining
Screws at 6 locations
around the mounting
pipe.

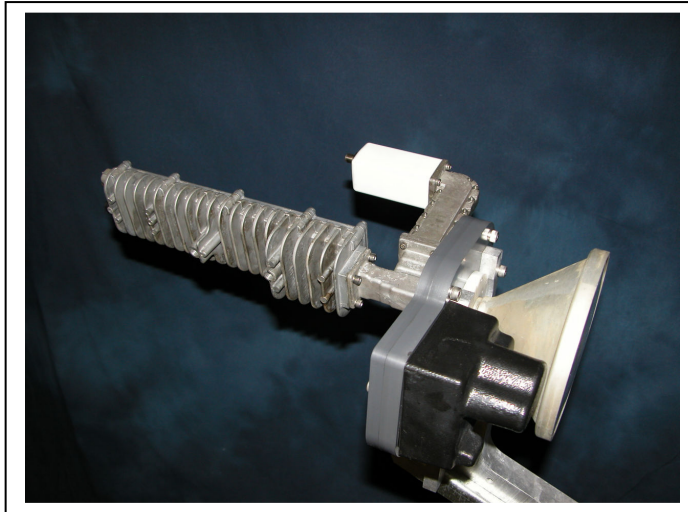
DISH ATTACHMENT

4. When using the **Carriage Bolts** supplied, locate the four (4) mounting holes and with a 3/8 inch drill bit, drill them out from the back side of the dish through to the front. **If you use the Hi-Lo self tapping screws that attach from the rear DO NOT DRILL OUT THESE HOLES.**

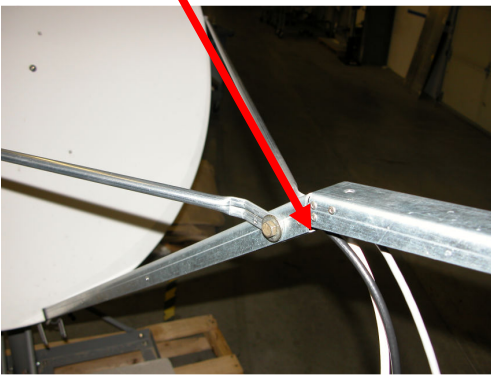


PRODELIN DISH

FEED (TRIA) ASSEMBLY



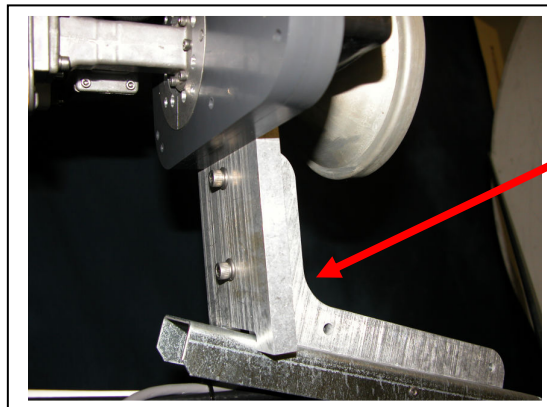
Route the RX/TX coax and Skew Motor cables up and through the TRIA channel.



Color coded coax
White = TX / Black = RX

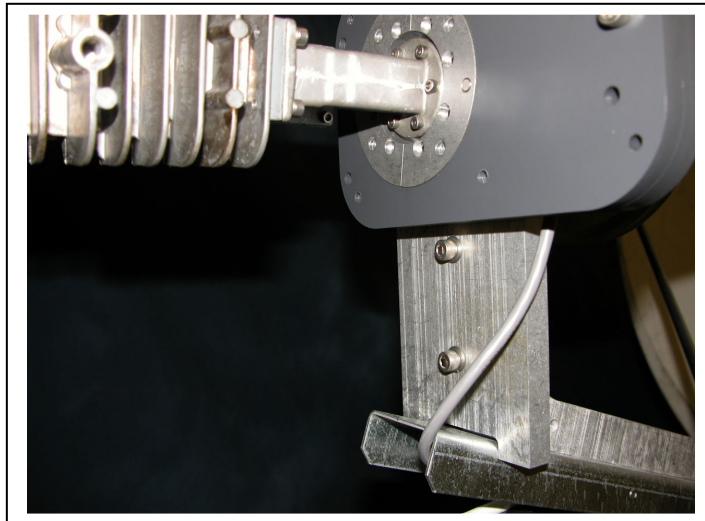
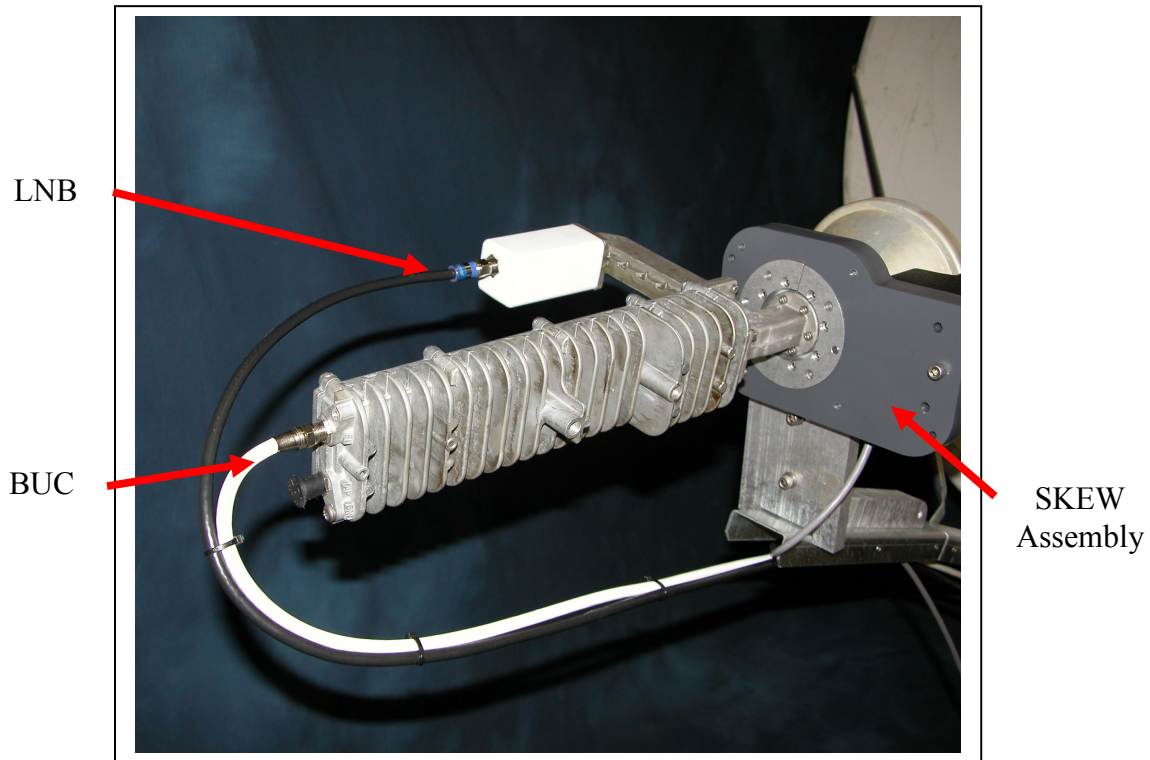


Skew Assembly Brackets



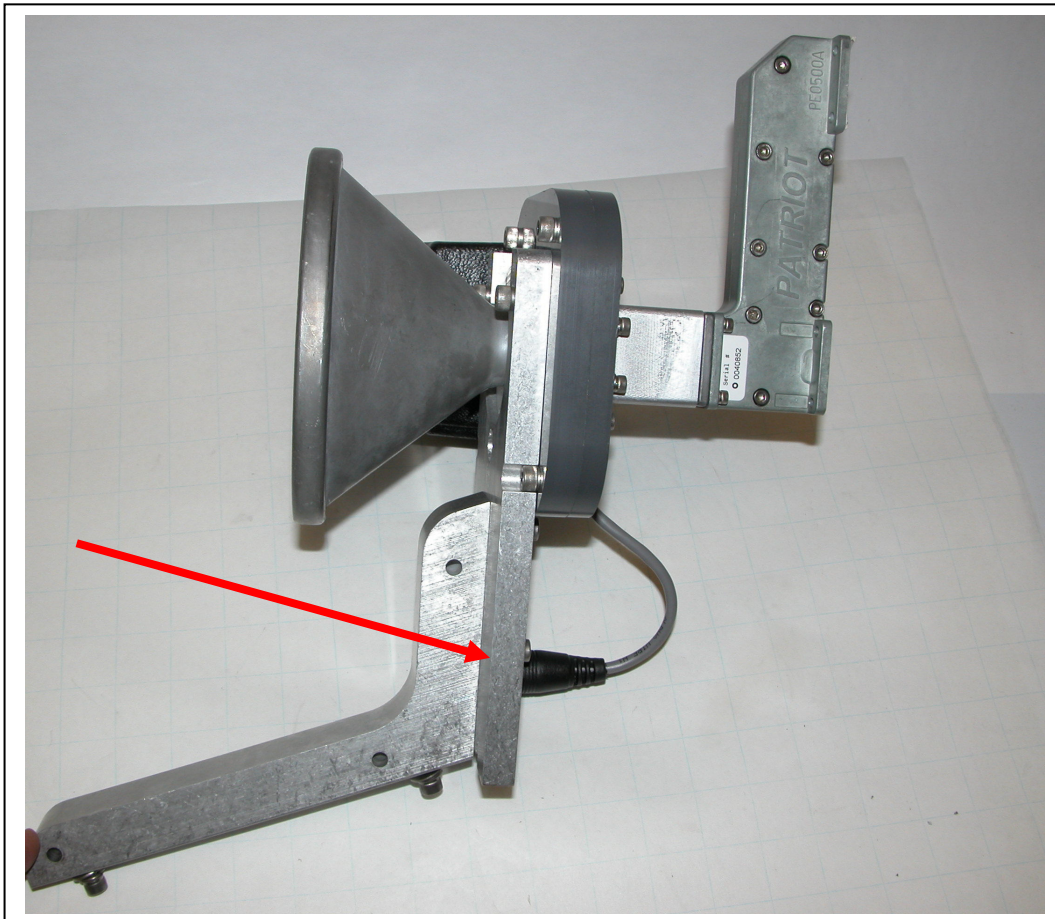
Transmit (RT), Receive (RX) and Skew cable Routing

Route the Transmit cable to the BUC (TX) and the Receive cable to the LNB (RX). The BUC and LNB have been shipped with a protective cap that has a small amount of Dielectric grease inside. Remove the cap and place the grease inside of your RG6 connectors and attach to the components. *Note: It is easy to confuse these two cables. Make sure the Transmit (TX) is attached to the BUC and the Receive (RX) is attached to the LNB.*



CONNECTING THE SKEW ASSEMBLY CABLE

After mounting the Skew assembly into place on the LNB Arm attach the Skew Cable Twist Lock Interconnect cable coming from the MESA Mount into place at the Skew Assembly.



PRODELIN CABLE ROUTING

1. Route the Transmit and Receive Coax cables from the facility that houses the modem to the installation pole. Connect the Receive (RX) Coax to the pig tail coax (approx 2' long) that is currently attached to the mount. Use the barrel connector that is supplied. Use a dielectric jell or grease at this connection to prevent moisture damage.

(The pig tailed RG6 is the **Receive line (RX)** and it continues in route to the LNB along with the Skew Assembly Cable that will be connected to the Skew Motor.)

The White TX cable will be routed up the Center LNB Support Arm to the Transmitter (BUC)



The Black RX Cable will be routed up the Center LNB Support Arm to the LNB.

2. The Transmit (TX) Cable that comes directly from the modem will accompany the Receive (RX) and Skew cable on their way to the TRIA Assembly.

The TX and RX cables should be routed the around the mount to insure that they do not bind or catch.

SERVICE LOOP

3. The Receive Coax, Transmit Coax and the Skew Cable must be wrapped and tied in a loop in the manner shown. There is a two (2) fold purpose.
- Service loop for possible future needs.
 - Slack for mount rotational purposes.



Service Loop

White cable is the Transmit cable that comes from directly from the modem and goes directly to the BUC (transmitter.)
Gray cable is the Skew cable that goes to the Skew motor.

Black cable is the Receive cable that came from the facility and is connected to the pig tail that goes to the LNB by way of the Mount.

Cable Routing Guide

Requirements

Modem of choice
Power Supply

D4 Controller

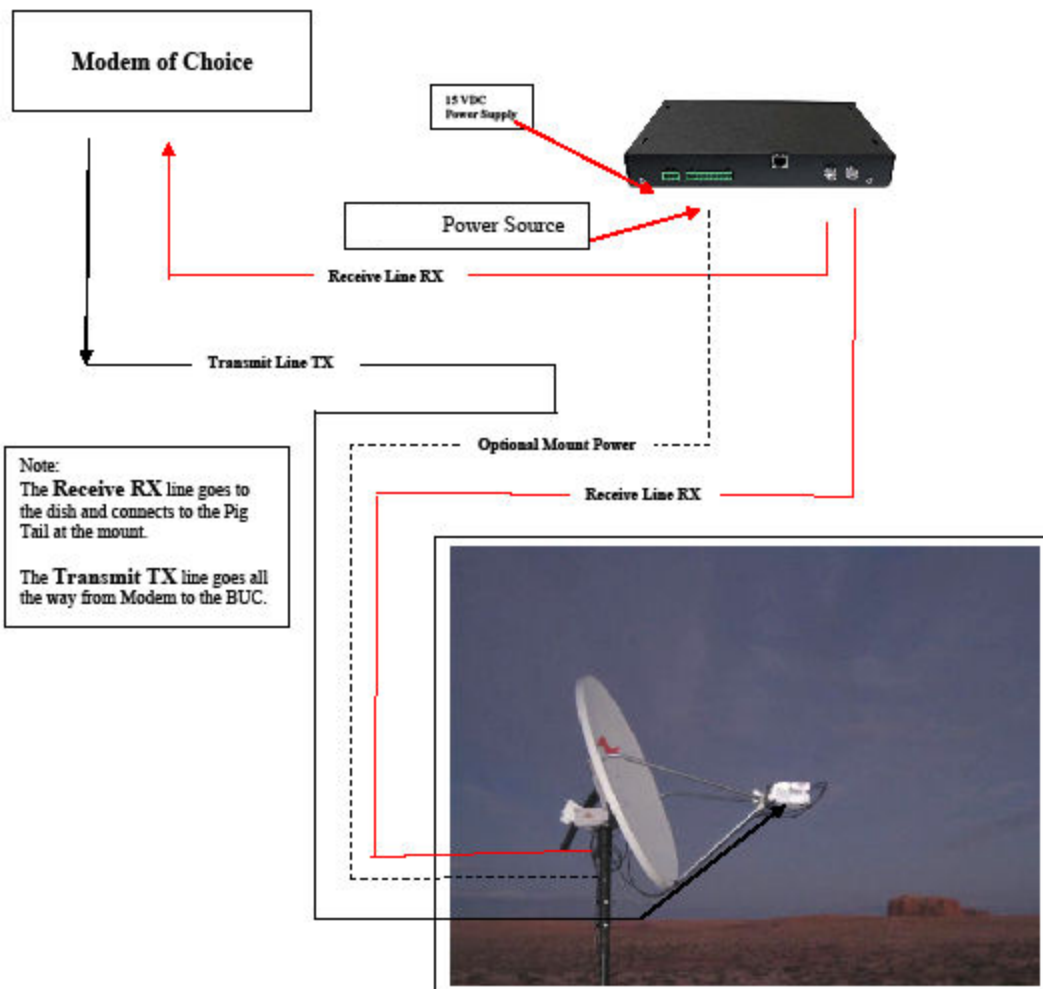
Power Supply

RG6 Coax Cable

Two (2) coax, Solid Copper, not to exceed 250' ea. (prefer one white (TX) and black (RX) to separate the two.)

One (1) 2' RG 6 coax from Modem to D4 Controller (supplied)

System Routing Guide



OPTIONAL Mount Power Cable

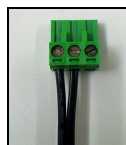
If your MESA Mount has a plug (not a plug with a cable attached) then you have a battery with your system. It can be operated with or without a Mount Power Cable if you have a battery. If your system does not have a battery then the Mount Power Plug (and cable) is required.

Your MESA system comes standard with a battery designed into the mount. The battery is charged and the operation of the mount is done through the RX coaxial cable. The battery provides power to the motors (Azimuth, Elevation and Skew) from a command given by the controller through the RX coaxial cable. The battery charge is maintained by the modem. There may be occasions or conditions where a battery is not wanted. In that case we have designed a Mount Power Cable which will eliminate the battery. When used, the power to the motors would be provided by the MESA Controller through the two (2) conductor cable which is run from the MESA Controller to the mount. A typical hookup for the Mount Power Cable is described below:

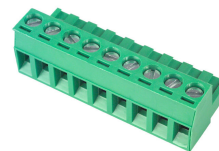


110-220 VAC

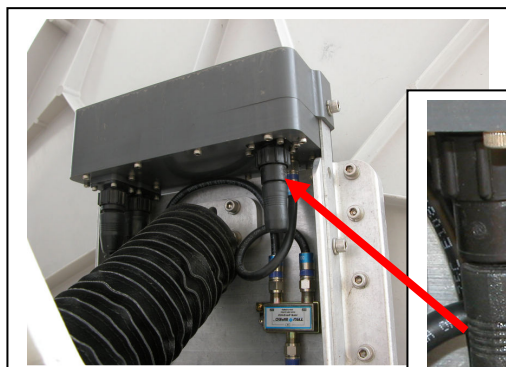
15 VDC Power Supply



Two (2) Conductors
Pin 6 = Ground (Black)
Pin 9 = 12-18 VDC (Red)



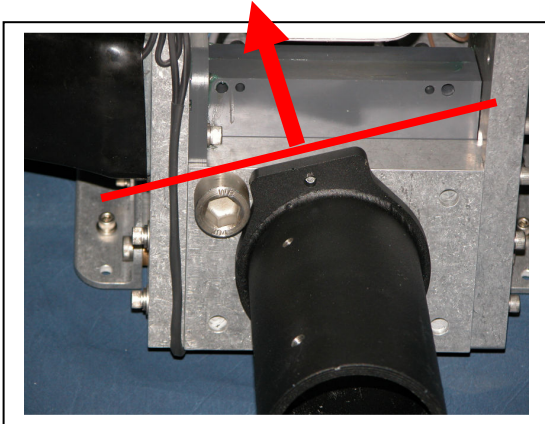
Battery Connect Plug (is used when a battery has been installed).



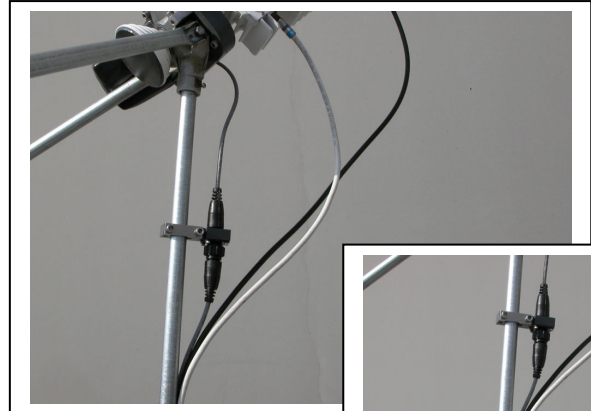
To use the **Mount Power Cable** remove the Battery Connect Plug and replace it with the Mount Power Cable.



WEST – (Northern Hemisphere)
EAST – (Southern Hemisphere)



RT, RX and Skew cables secure?



YOU SHOULD BE GOOD TO GO IF

- Are all connections secured?
- Are all mounting bolts secured?
- Does the RT cable go from BUC directly to the modem?
- Does the RX cable go from the LNB to the MESA controller and then to the modem?
- Is the mount orientated in accordance to specifications?
- Are your coax and skew cables positioned in such a way as to not catch on anything during rotation?
- Are all cable connections protected with dielectric jell or grease?

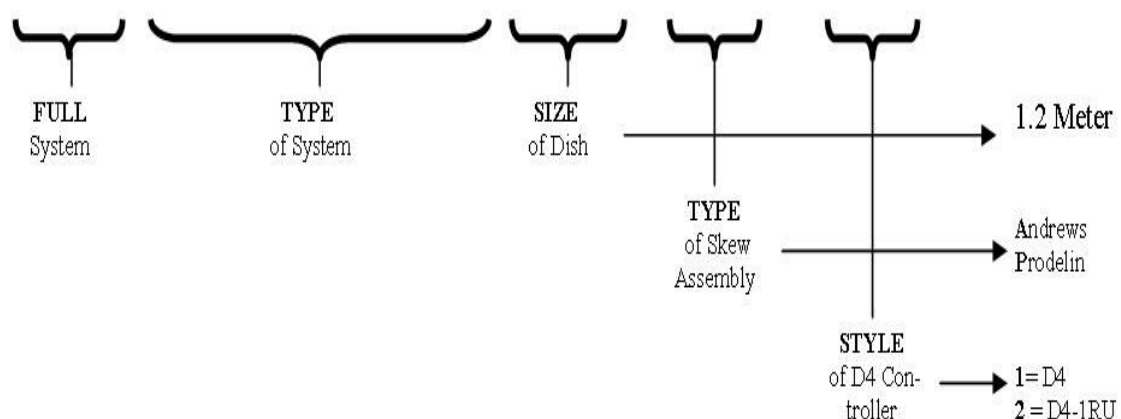
THINGS YOU SHOULD *And* SHOULD NOT DO

1. **Never** apply power directly to the Azimuth, Elevation or Skew Motors. Doing so will send current directly to the Mount Control Board and cause electrical damage. If you have a requirement to run these motors directly, please contact our Technical Support department for suggestions.
2. **Always** tighten the mount bolts on the mounting pole evenly and firmly so that the mount will not rock or twist on the pole. It is recommended that a pin be placed through the MESA Mount into the ground pole to prevent the mount from twisting during severe winds.
3. **Loop** the Transmit and Receive coax cables that come from the modem onto the mount in such a way as to not create tension on the cable when rotating and searching for satellite.
4. **Loop** the RX and TX coaxial cables coming directly from the BUC and LNB in such a way as to allow for rotation of the TRIA Assembly and not stress the cable or connectors.
5. **Position** the RX and TX coaxial cables so that they will not catch on the bolts that hold the mount onto the mounting pole during antenna rotation.
6. **Secure** all loose cables with cable ties where possible.

MESA SYSTEM

PART NUMBER BREAKDOWN

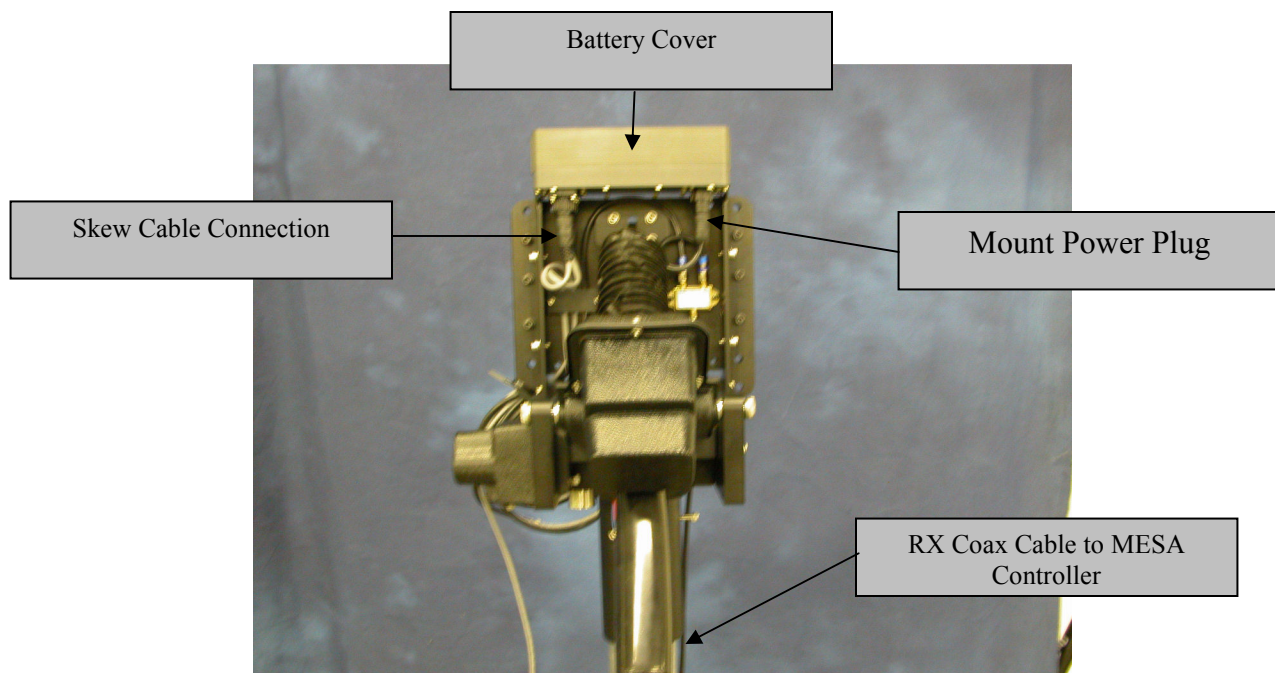
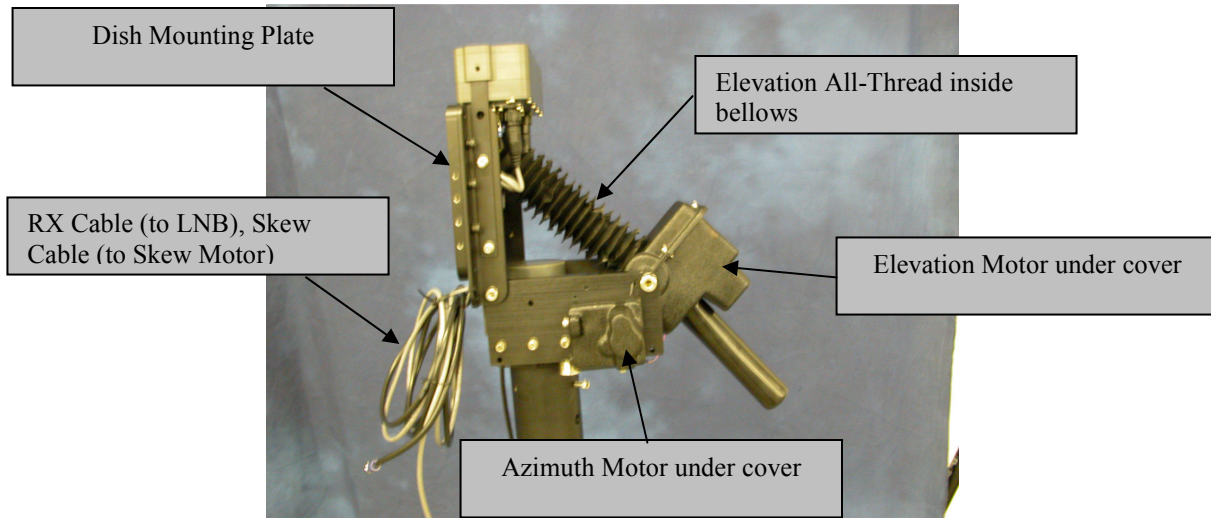
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All other items required will contain a separate entry i.e.

Antenna (Specify either Andrews or Prodelin 1.2 Meter)
LNB (Specify style)
BUC (Specify wattage)
Modem (Specify Type and Model)

MESA Terminology



MESA

LIMITED WARRANTY

(1 YEAR PARTS / 1 YEAR LABOR)

MotoSAT warrants this product against defects in materials or workmanship for a period of one (1) year and against factory labor costs for a period of one (1) year from the date of original purchase by the original purchaser. (This warranty is non-transferable).

It is the customer's responsibility to verify the date of purchase by registering the product with MotoSAT within thirty (30) days of purchase. If the date of purchase cannot be verified, the warranty period will begin thirty (30) days after the product's date of manufacture.

If a defect in material, workmanship, or product performance, according to specifications, is discovered during the warranty period, the customer should contact their distributor or MotoSAT technical support. If the product cannot be repaired at the customer's location, MotoSAT will, at its option, repair or replace the product at no charge to the customer, provided the customer returns the product to MotoSAT, during the warranty period with transportation charges prepaid. The customer must return the product with the return material authorization (RMA) number clearly marked on the outside of the container. MotoSAT will ship the product back to customer, ground transportation prepaid. If an expedited return delivery is desired, all additional transportation charges will be the sole responsibility of the customer.

Third party manufactured equipment including satellite modems, LNB's, BUC's, BUC power supplies, special cables, outdoor antenna components and any other **non-MotoSat manufactured items will be covered by the original manufacturer's warranty only.**

Approval of the warranty service is at the sole discretion of MotoSAT. MotoSAT reserves the right to utilize refurbished or remanufactured parts in its product manufacturing and repair activities provided such parts conform to MotoSAT's specifications for new products and/or parts.

This limited warranty does not apply if the product has been damaged by accident, abuse, misuse, or malfunctions as a result of improper installation or misapplication, modification of the product as originally manufactured by MotoSAT in any manner whatsoever, removing or defacing any serial number, usage not in accordance with product instructions or acts of nature such as damage caused by wind, lightning, ice or corrosive environments such as salt spray and acid rain. This limited warranty also does not apply if the product becomes unable to perform its intended function in any way as a result of the bandwidth service provider making any changes in technology or service.

This warranty can be extended through the purchase of an extended warranty. Note that if you choose the 1.2m MESA with the battery option, the battery will not be covered by the extended warranty. The expected battery life is 2 to 5 years. Spare batteries are available for purchase from MotoSAT.

During the term of this contract, all software updates for the MESA will be made available to the customer.

RETURN AUTHORIZATION POLICY

A return material authorization (RMA) is required prior to returning any product to MotoSAT. Please call our technical support department at 800-247-7486 or send an e-mail to techsupport@motosat.com in order to obtain the RMA number. Please provide contact information and serial number of the product when requesting an RMA number. If possible, use the original box and packing material to protect the product from damage during transportation. Enclose the product in a prepaid package and write the RMA number in large, clear letters on the outside of the package. To avoid confusion or misunderstanding, shipments without an RMA number or unauthorized returns will be refused and returned to the customer freight collect.

MOTOSAT DOES NOT ASSUME ANY LIABILITIES FOR ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, MADE BY ANY OTHER PERSON. ALL OTHER WARRANTIES WHETHER EXPRESS, IMPLIED OR STATUTORY INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY ARE LIMITED TO THE ONE YEAR PERIOD OF THIS WARRANTY.

MotoSAT's liability in contract, tort or otherwise arising out of or in connection with any product shall not exceed the price paid for the product. IN NO EVENT SHALL MOTOSAT BE LIABLE FOR SPECIAL, PUNITIVE, INCIDENTAL, TORT OR CONSEQUENTIAL DAMAGES OR LOST PROFITS OR GOODWILL (INCLUDING ANY DAMAGES RESULTING FROM LOSS OF USE, DELAY IN DELIVERY OR OTHERWISE) ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OR USE OR POSSESSION OF ANY PRODUCT, OR ANY OTHER OBLIGATIONS RELATING TO THE PRODUCT, EVEN IF MOTOSAT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

EXTENDED WARRANTY IS AVAILABLE THOUGH YOUR SUPPLIER.

An Extended Warranty may be purchased to extend the original warranty after the first year for up to a total of three (3) years from date of purchase.

All terms and conditions of the original “**1 YEAR PARTS / 1 YEAR LABOR**” apply to the “Extended Warranty.”

Contact your supplier for details.

SUPPORT

For Technical Support please call
1-800-247-7486
Ask for the next available Technician

or Email
support@motosat.com

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